NOTEBOOK COMPUTER

RT9

User's Guide

Notice

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Revision History:

Revision	Date	Changes	Author
1.0.5	2012/10/30	Update Battery mAh and nominal voltage information.	Pablo Tseng
1.0.4	2012/10/22	Correct BT/WLAN/GPS LED indicator.	Pablo Tseng
1.0.3	2012/9/19	Update CE and Touchpad info.	Pablo Tseng
1.0.2	2012/5/29	Add a notice to inform users that ext. power source is required when operating at -20℃. Add HDD password function. Add DockUnder DUK89/DUT89 PCI card & PCI express Card slot information. Update BIOS screen and add serial port setting information.	Joe Chang
1.0.1	2011/12/14	Add battery charging temp. threshold. Add SATA compatibility setting mode under BIOS for installation of WinXP. Update BIOS Security Menu selections. Update Gigabit LAN driver installation info.	Joe Chang
1.0.0	2010/12/14	Official release	Sonnie Liu

FCC (Federal Communications Commission) Statement

This equipment has been tested and found to comply with the limits for a Class B digital device pursuant part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses, and radiates radio frequency energy. If not being installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired operation.

FCC Caution:

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

Regulatory Information/ Disclaimers

Installation and use of this computer must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment.

The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines**.**

CE

Products with the CE Marking comply with both the EMC Directive (2004/108/EC) and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.

Compliance with these directives implies conformity to the following European Norms:

EN55022	(CISPR 22) Radio Frequency Interference
EN55024	(EN61000-4-2, EN61000-4-3, EN61000-4-4, EN61000-4-5, EN61000-4-6, EN61000-4-8, EN61000-4-11, EN61000-3-2, EN61000-3-3) Generic Immunity Standard
LVD	EN 60950-1:2006+A11:2009 IEC 60950-1: 2005, 2nd Edition

R&TTE (CE) Manual Regulatory Requirement

WLAN - IEEE 802.11a/b/g/n

802.11a/b/g/n Restrictions:
European standards dictate maximum radiated transmit power of 100mW EIRP and frequency range 2.400-2.4835 GHz. In France, the equipment must be restricted to the 2.4465-2.4835 GHz frequency range and must be restricted to indoor use.

CE Declaration of Conformity

It is confirmed to comply with the requirements set out in the Council Directive on the approximation of the laws of the member states relating to Electromagnetic Compatibility (2004/108/EC), Low-voltage Directive (2006/95/EC), the Amendment Directive (93/68/EEC), and the procedures given in European Council Directive (99/5/EC and 2004/108/EC).

The equipment was passed, and the equipment test was performed according to the following European standards:

EN 300 328 V1.7.1: 2006
EN 301 893 V1.5.1: 2008
EN 301 489-1 V1.8.1: 2008
EN 301 489-17 V2.1.1: 2009
EN 50371:2002
EN 60950-1: 2006+A11:2009

UL, TÜV
AC Adapter (TÜV includes EN60950 LVD)

Power Conservation

This computer consumes much less power than conventional computers. However, power consumption may be reduced by configuring the Power Management Setup properly.

It is recommended the power saving functions to be enabled even when not running on battery power.
Power Management will not degrade performance while saving power.

Power Safety

There are specific power requirements for this computer:

- Only use an approved power adapter for this computer.
- There is a 3-prong grounded plug of the power adapter. The third prong is an important for safety. Do not neglect the importance for it. If you are not able to access a compatible outlet, installing one by a qualified electrician is necessary.
- When unplugging the power cord, please be sure to disconnect it from the plug head but from its wire.
- Make sure the socket and any other extension cord you use can support the total current load of all the connected devices.
- Before cleaning the computer, make sure it is disconnected from any external power supplies.

Warning:

Before any upgrade procedures, make sure the power is turned off, and all the cables are disconnected (including telephone lines). Also, it is advisable to re-move your battery in prevent from turning the computer on accidentally.

Battery Precautions

- Only use the batteries designed for this computer. The wrong battery may cause explosion, leakage or damage to the computer.
- Do not remove the battery from the computer while it is powered on.
- Do not continuously use a battery that has been dropped, or that appears damaged (e.g. bent or twisted) in any way. Even if the computer is able to continuously work with a damaged battery, the circuit damage may occur and possibly cause fire.
- Always use the notebook's system or charger to recharge the battery. Incorrect recharging may make the battery explode.
- Do not try to repair a battery pack by yourself. Refer to any battery pack repair or replacement, please contact with to your service representative or qualified service personnel.
- Please dispose of a damaged battery promptly and carefully. Explosion or leakage may occur, if the battery is exposed to fire, improperly handled or discarded.

Battery Disposal & Caution:

The product that you have purchased contains a rechargeable battery. The battery is recyclable. At the end of its service life, under various state and local laws, it may be illegal to dispose of this battery into the municipal waste stream. Check with your local solid waste officials for details in your area for recycling options or proper disposal. Danger of explosion may possibly occur, if the battery is incorrectly replaced. Replace only with the same or the equivalent battery recommended by the manufacturer. Discard the used battery according to the manufacturer's instructions.

Environmental Information, Material Safety & Recycling

All materials used in the manufacturing of this equipment are recyclable or environmentally friendly.

Please recycle the packing materials by the local regulations at the end of the product's service life.

Notice:

- The equipment may still contain tiny amount of hazardous substances for health and environment, though those are below control level.
- To avoid spreading such substances into the eco system, and to minimize the pressure on the natural, you are encouraged to use the appropriate take-back for reusing or recycling most of the materials in a safe way after the service life.
- The crossed bin symbol indicates proper disposal is required.
- For more information on collection, reuse and recycling, please consult the local or regional waste administration for more information.
- You can also contact with the dealer for more information on the environmental details of the equipment.
- The symbol of the crossed out wheeled bin indicates that the product (electrical and electronic equipment) should not be placed in municipal waste. Please check local regulations for disposal of electronic products.

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Chapter One - Getting Started

Unpacking

The following components are along with your notebook computer. If there is any missing or damaged, please contact with your dealer immediately.

- Computer Unit
- Removable HDD (Hard Disk Drive)
- Removable ODD (Optical Disk Drive)
- AC Adapter
- AC Power Cord
- Utility DVD
- Quick Guide
- Carrying Bag

Quick Operation

- Loosen the battery screw, remove the battery insulation sheet, and mount the battery.
- Connect the AC adapter with the computer and start charging the battery for at least 10 minutes.
- Turn ON the computer by pressing the Power Switch.

Notice:

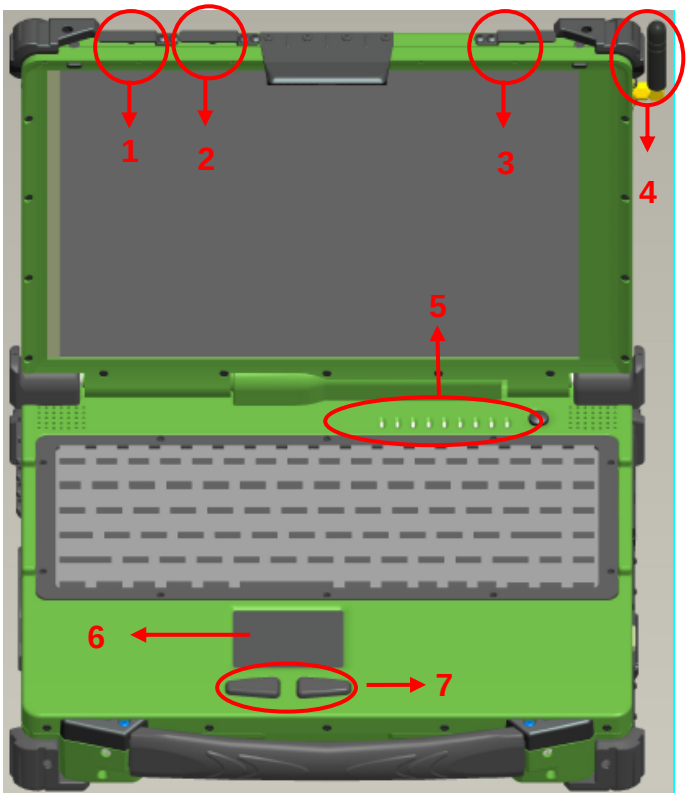
- When ambient temperature is under +5℃ (This is the default setting for this computer.), the system may not boot up immediately. System will beep with LED heater light flashing to remind the user while heater working. Also, the frequency of the LED will become faster to remind the user while the temperature is approaching to be suitable. After 5~15 minutes, the system will boot up automatically.
- Under an emergency situation, it is able to skip heating for booting up the system immediately by pressing the power switch for >9 seconds. The speaker will also beep with a special sound. (It is not guaranteed all devices on the computer are possible to work properly.)
- Press the power switch again during the heating process will shut down the computer.
- Driver or application software installation may be necessary for further operation.
- The following procedures will help to Turn OFF the computer:
  1. Press power switch to “Shut Down”, “Sleep”* or “Hibernate”* depending on operating system (OS) and power management settings.
  2. Press power switch for 4 seconds for a “Hard” power off. But the system will shut down immediately without saving any data or parameters.
  3. Click **Start** → **Shut Down** in Windows to **Turn OFF.**

Note:

➢ *Some operating systems may not support the above-mentioned functions.*

Appearance Overview

LCD Panel Open

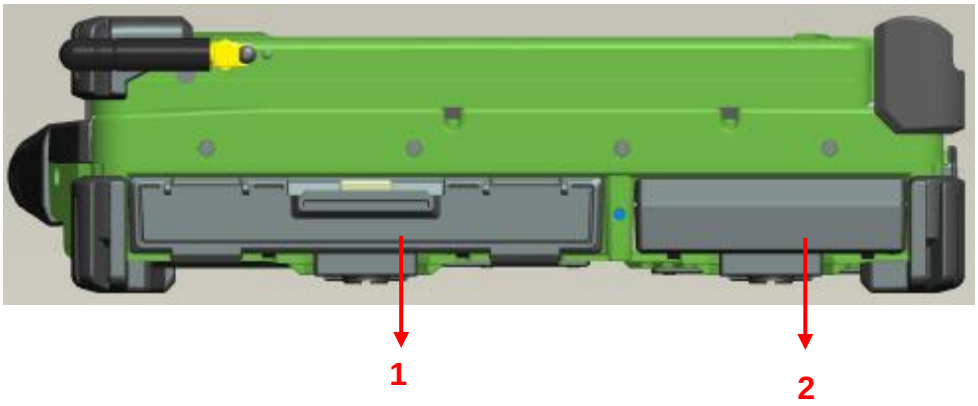


1. Embedded Antenna: WLAN-L (Optional)
2. Embedded Antenna: Bluetooth (Optional)
3. Embedded Antenna: WLAN-R (Optional)
4. External Antenna: HSDPA/ UMTS (Optional)
5. LED Indicators and Power Switch:

Heater	HDD in Use
BT/WLAN/GPS	Secondary Battery Charging
Keyboard Number Lock	Primary Battery Charging
Keyboard Caps Lock	Power Indicator
Keyboard Scroll Lock	Power Switch

6. Touchpad
7. Touchpad Right and Left Button

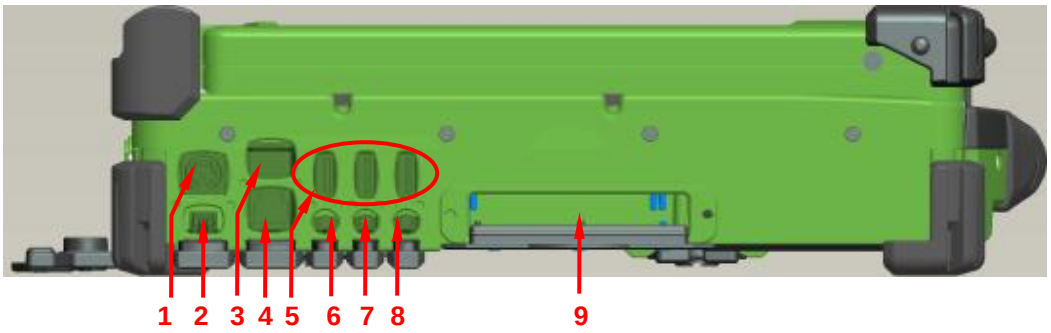
Right View



1. Flex Bay:
    a. Standard: SATA ODD (Optical Disk Drive)
    b. Optional: 2nd HDD or 2nd Battery

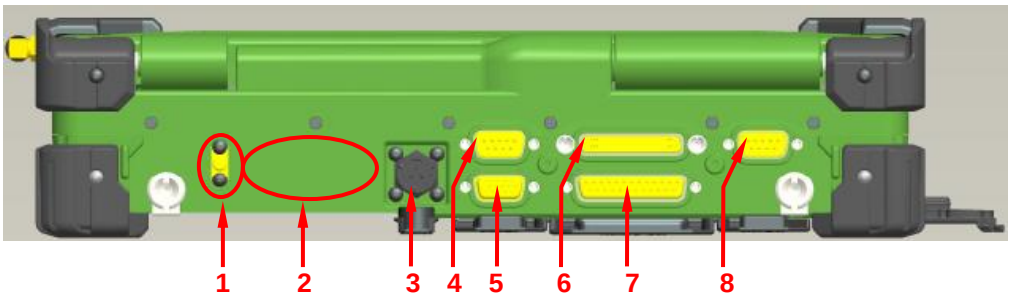
2. SATA HDD (Hard Disk Drive)

Left View



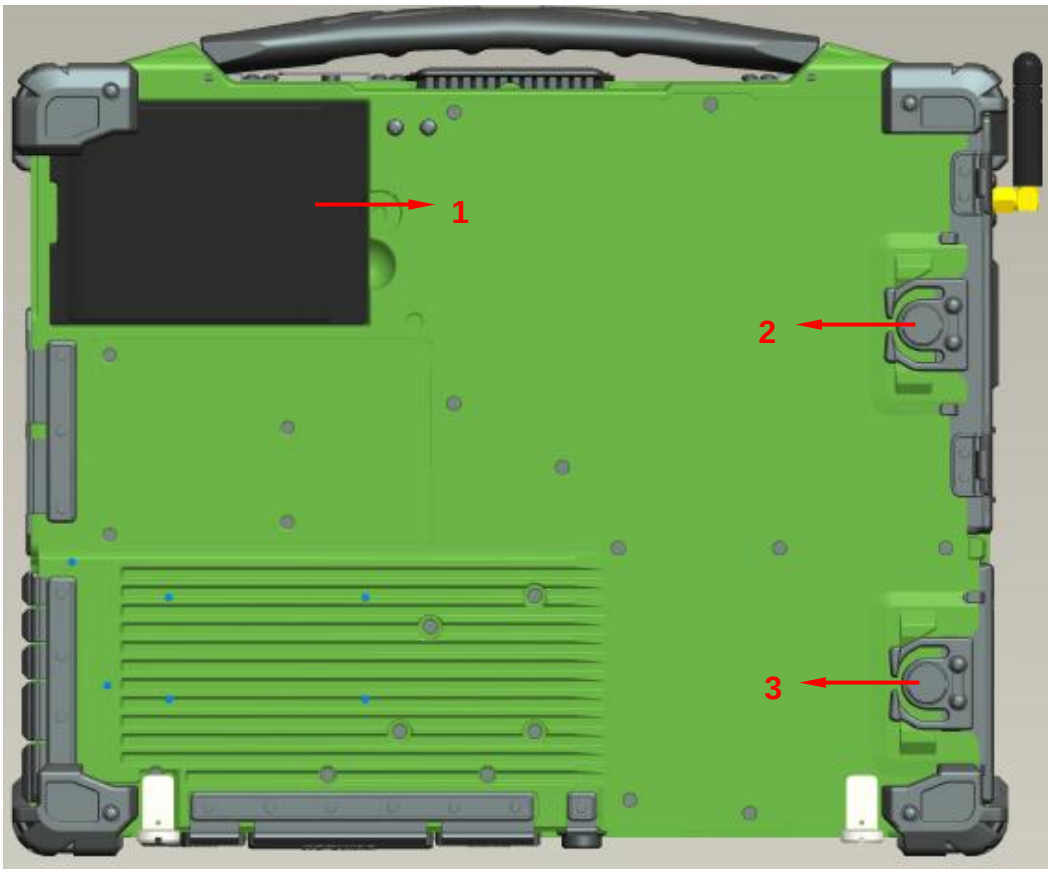
1. PS/2 Port (Keyboard + Mouse)
2. IEEE1394 Port (Fire Wire)
3. LAN RJ45
4. Modem Jack RJ11 (Optional)
5. USB Port x 3 (Universal Serial Bus)
6. External Speaker & Ear phone Jack
7. Line-in Jack
8. Microphone Jack
9. Express Card Slot x 1 & PC Card I/II Slot x 1
   (Optional: PC Card I/II Slot x 2)

Rear View



1. External GPS SMA Antenna (Optional)
2. Military Connector Port (Optional)
3. DC Power Jack
4. Serial Port DB9 (COM1/ Default: RS232)
5. RGB Port
6. Docking Port
7. Printer Port
8. Serial Port DB9 (COM2/ Default: RS232)

Bottom View



1. Primary Battery
2. ODD Latch
3. HDD Latch

Chapter Two - Operating Information

Workplace

A clean and moisture-free environment is preferred. Make room for air circulation. Remember to avoid areas from:

- Sudden or extreme changes in temperature.
- Extreme heat.
- Strong electromagnetic fields (near television set, motor rotation area, etc.).
- Dust or high humidity.

If it is necessary to work in a hostile environment, please regularly maintain your notebook computer by cleaning dust, water, and etc. to keep it in an optimal condition.

Ruggedness

This notebook computer is designed with rugged features such as vibration, shock, dust, and rain/ water protection. However, it is still necessary to provide appropriate protection while operating in harsh environments.

The notebook computer is also designed to withstand rainfall from top with mild wind blowing only. Please keep the keyboard facing up, i.e. normal operating direction, to maintain water resistance. NEVER immerse the unit in water, or spray water at an upside-down system. Doing so may cause permanent damage.

The D-sub connector caps on the rear of the computer are for dust and shock protection. The connectors are sealed internally. Other I/O ports and devices on the left or right must have caps tightly closed or cable inlets sealed while being exposed to water or dust.

There are optional gaskets for DB-9 and DB-25 connectors. You may install them to improve rain/ dust/ moisture resistance on your commercial type cable. Insert the packing into the male connector (with pins) and fasten the screws.

All connectors will be corroded if being exposed to water or moisture. Corrosion is accelerated if the power is ON. Please take proper water-resistant measures for cable connections. The DC jack and cables are sealed and may be operated with water splashing while attached. All port covers should be in place when no cable is attached.

Operating System

This notebook computer is compatible with most operating systems (OS). However, not all functions are 100% compatible. For example, ACPI, Smart Battery, and etc. are not available on DOS, and other non-Microsoft OS. Consequently “Standby”, “Hibernation”, “Battery Gauge”, and etc. would not work under such operating systems.

Work with Power Button

Since the notebook computer is equipped with a heater kit to enable the unit to work under low temperature, the heater will first heat HDD up to the temperature set by user, and the system will boot after then. Also, the heater will keep monitoring HDD temperature. Once the temperature becomes lower, the heater will heat up again to maintain the temperature set by user.

The function will be different from the way you use with the power button:

1. Press 12 seconds and release:
   USB port is enabled and you can set a new value in Heater AP.
2. Press 9~11 seconds:
   The system will be forced to boot up.
3. Press 5~8 seconds:
   Enable/Disable the sound of Heater.
4. Press 4 seconds under OS:
   Shut down the system.
5. Click the Power button.
   a. Power on the system in S5 status.
   b. Click while heating up, the system will be forced to shutdown
   c. Entering S3/S4 under OS.

Boot Up and POST

Boot up
The computer turns ON and loads the operating system (such as Windows) into the system memory. This start-up procedure is called “boot up”.

The ROM BIOS Power on Self-Test (POST)
Each time the computer powers on, it automatically performs a self-test of its memory and hardware devices.

Shut down

Before shutting down, please always remember to save the unfinished works and close the application for preventing from any possible data loss or HDD damage.

"Shut down" will totally turn OFF the power of your notebook computer. If you want to start your notebook computer again, you need to press the power switch.

Sleep/ Hibernate

Sleep

Under "Sleep" mode, the system will temporarily save your work into RAM. You are able to do enter "Sleep" mode by directly clicking from your OS. Or, you can do the "Sleep" Mode settings in your OS. If you want to start your notebook computer again, all you need to press any key.

Hibernate

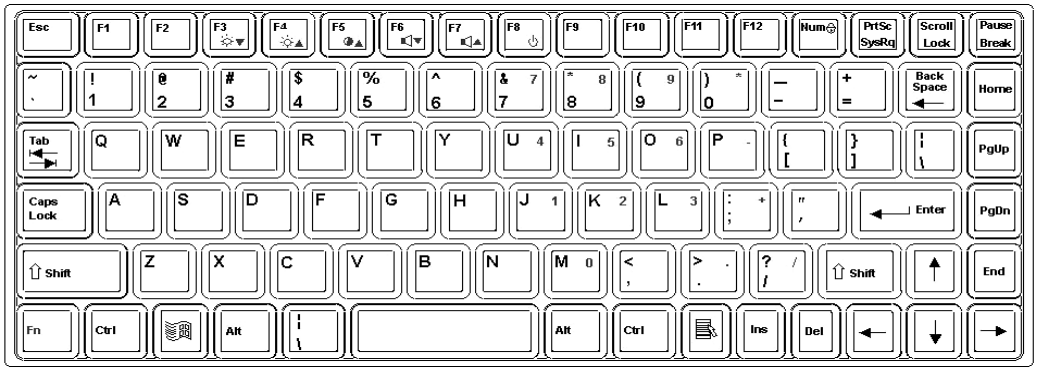
Under "Hibernate" mode, the system will save your work into HDD. You are able to do enter "Hibernate" mode by directly clicking from your OS. Or, you can do the "Hibernate" Mode in your OS. If you want to start your handheld computer again, you need to press the power switch.

Note:

- *Standby/Hibernate/Resume works with both AC adapter and battery. The power management functions may not work under non-ACPI operating systems.*
- *If you work under Windows 7 (64 bit) with external KB or mouse, please do the Windows Setting as follows:*
  1. *External Mouse: Device Manager → Mice and other pointing devices → HID- compliant → Power Management → Disable "Allow this device to wake the computer"*
  2. *External KB: Device Manager → Keyboards → HID-compliant → Power Management → Disable "Allow this device to wake the computer"*

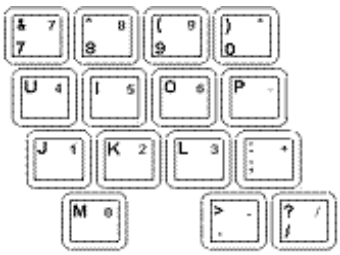
Keyboard

The keyboard is functionally equivalent to a full size desktop keyboard. A sample layout is shown below.



The Numeric Keypad

The numeric keypad functions are the same as an electronic calculator. It is embedded in the main keyboard, with the numeric figures printed on the upper right of their respective keys. There are keys for the digits 0~9, the decimal point (.), addition (+), subtraction (-), multiplication (*), and division (/) in the keypad.



To activate the keypad, press the Num Lock key. There are 15 keys switching from alphabetic to numeric. Press Num Lock again to return.

Keyboard Backlight (Optional)

Press **[Fn] [F5]** key for approximately 1 second to turn the keyboard backlight ON or OFF.

Hard Disk Drive (HDD)

The Hard Disk Drive (HDD) is a 2.5" type/ 9.5mm height standard **SATA interface** data storage device.

HDD and ODD (Optical Disk Drive) are removable. This design provides convenience and security. They can ONLY be removed when the power is OFF.

Note:
NEVER drop your HDD, ODD or expose them to high temperature, high humidity, or any hazardous environment. NEVER try to disassemble the module. Static discharge may destroy your device and data. Always pick up the modules by touching the case only.

ODD (Optical Disk Device)

There is a 5.25" type/ 12.7mm height standard **SATA interface** ODD. The actual device will depend on the model you purchased. The ODD may be used as a boot device if properly set in the BIOS.

The ODD accepts a variety of standard 12cm CDs, DVD-ROM (Single Layer, Dual Layer), DVD-Video, DVD-R*10 (1.4 GB, 2.8 GB, 4.7GB), DVD-RW (Ver.1.1/1.2 1.4 Gx`B, 2.8 GB, 4.7 GB, 9.4 GB), DVD-R DL (8.5 GB), DVD-RAM (1.4 GB, 2.8 GB, 4.7 GB, 9.4 GB), +R (4.7 GB), +R DL (8.5 GB), +RW (4.7 GB), CD-Audio, CD-ROM (XA compatible), CD-R, Photo CD (multiple session compatible), Video CD, CD EXTRA, CD-RW, CD-TEXT and etc.

Do not use the IDE-interface ODD; it may cause the computer malfunction.

The following procedure assumes that all the necessary ODD utilities were installed on the computer. For ODD utility installation, please refer to "**Utilities and Drivers**". ODD also can be removed and swapped with the 2nd battery or 2nd SATA HDD.

Put disk into the ODD
While the power is ON, push the ejecting button of ODD. The tray will release. Then gently pull the tray out. Put the disk with its label facing up on the holder and push the tray back into the cabinet. Any dirt on the data side of the disk may cause to the erroneous read. Please avoid touching the data side.

Read from the ODD

The ODD may be designated as drive D: or higher depending on your configuration. You may access to it in DOS or Windows. Please avoid shock or vibration when the optical device is active.

Express and PC Cards

The computer supports one PC Card I/II and one Express card or two PC Card I/II cards. To remove the card, push the button on the right of the card to eject it. The ejecting button can hide into the compartment by pushing it inward gently.

RTC

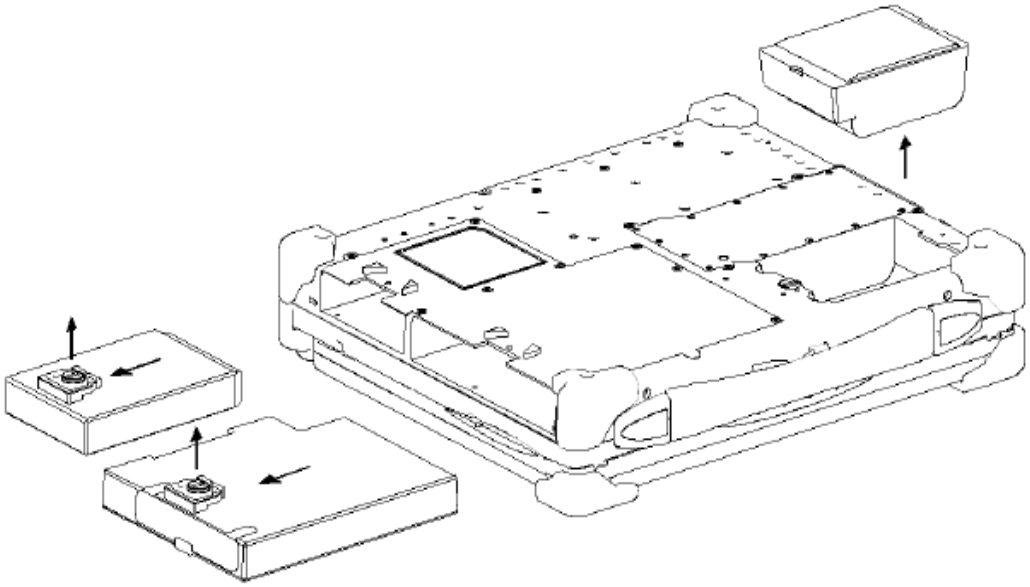
Battery backed up RTC (Real Time Clock/Calendar) is built in an on-board CMOS (Complementary Metal Oxide Semiconductor) chip. The RTC keeps track of the time and date while the computer is off. The CMOS chip also stores system setup information.

RTC battery is also recharged when AC adapter is attached. Recharge the computer approximately once per month to ensure RTC operation.

Replacing Modules

To remove the modules:

1. Turn OFF the computer or hibernate.
2. Disconnect all cables from the computer.
3. Use a coin to turn and loose the screws on the modules.
4. Remove the battery from the compartment.
5. Push the latch knob to release the ODD or HDD module and push them outward.
6. Remove the module from the computer.



To re-install the modules:

Gently push the module into the slot. Fasten the screw to fix the module.

Caution:

You must turn the power OFF before replacing the ODD and HDD modules.

Wireless Devices (Optional)

Before using wireless devices, please turn "**ON**" the Wireless Devices All ON/OFF Switch, and then use the Wireless Manager to do the rest settings.

The following instructions are only for the models with optional Wireless Devices (Wireless LAN/ Bluetooth/ WWAN/ GPS) and taking the systems working under Windows 7/ 64-bit OS for example.

Wireless LAN

1. **Driver & Application Installation:**
   a. Install the Chipset Driver first.
   b. Then, install the Wireless Manager.

2. **Launch the Wireless Manager:**
   a. Launch the Wireless Manager.
   b. Click "**Wireless LAN"** for enabling the Wireless LAN function (click again for disabling the WLAN function). Once the Wireless LAN starts up, the RF LED will turn on accordingly. Please see the illustration as the right picture (with Wireless LAN function "**ON**"):

Bluetooth

1. **Driver & Application Installation:**
   a. Install the Bluetooth driver first.
   b. Then, install the Wireless Manager.

2. **Launch the Wireless Manager:**
   a. Launch the Wireless Manager.
   b. Click "**Bluetooth"** for enabling the Bluetooth function (click again for disabling the Bluetooth function). Once the Bluetooth starts up, the RF LED will turn on accordingly. Please see the illustration as below (with Bluetooth function "**ON**"):

WWAN

1. **Insert the SIM card:**
   a. Turn off your computer.
   b. Reverse your computer to the bottom side.
   c. Find the battery bay and loosen the screw besides it.

Loosen the screw besides the battery bay.

   d. Remove the battery.

After removing the battery, you are able to see the SIM card lock.

e. Slide the SIM card lock to the left to open.

f. Pull up the SIM card slot.

g. Put your SIM card into the SIM card slot.
h. Push down the SIM card slot.

2. Driver & Application Installation:

a. Install the WWAN driver first.

b. Then, install the Wireless Manager.

3. Launch the Wireless Manager:

a. Launch the Wireless Manager.

b. Click "**WWAN"** for enabling the WWAN function (click again for disabling the WWAN function). Once the WWAN starts up, the RF LED will turn on accordingly. Please see the illustration as below (with WWAN function "**ON**"):

GPS

1. **Application Installation:**
   Install the Wireless Manager.

2. **Launch the Wireless Manager:**
   a. Launch the Wireless Manager.
   b. Click "**GPS"** for enabling the GPS function (click again for disabling the GPS function). Once the GPS starts up, the RF LED will turn on accordingly.

3. **Update Driver:**
   Enter into the "**Device Manager"** in "My Computer" to update driver, then select "Browse my computer.....", then select "Browse for driver..., and search for "RK9 - RF9 - RT9 - \ Drivers\ Windows 7 (64-bit)\ GPS_ublox5" then follow the prompt to complete installation. Please see the illustration as below (with GPS function "**ON**"):

Note:

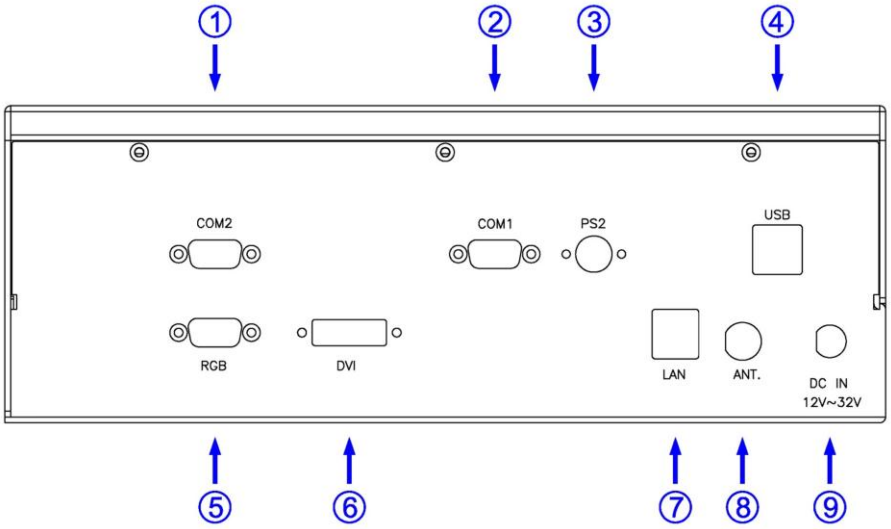
- *You are able to do a quick operation for disabling all the Wireless devices by clicking "ALL OFF" in Wireless Manager. Please see the illustration as below:*

- *Also, a quick turn-off by Wireless Devices All ON/OFF Switch is a hardware design for "**Fly Mode**". You are able to turn off all the Wireless Devices without doing any software settings.*
- *The system will auto-run the Wireless Manager while booting. There are two ways to turn on the Wireless Manager:*
  1. *Click the right mouse button on the Wireless Manger Icon at the right corner of the toolbar, then chose "**Open**" to turn on the Wireless Manger*
  2. *Double click the left mouse button of the Wireless Manager Icon at the left corner of the toolbar to turn on the Wireless Manager.*

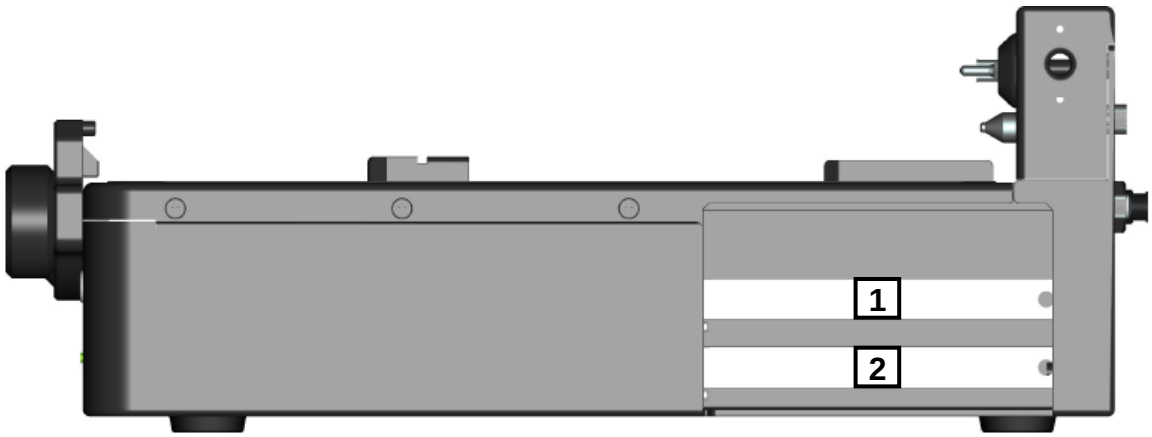
DockUnder DUT89 (Optional)

DockUnder is utilized for system unit docking. AC adapter or vehicle adapter should attach directly to DockUnder and automatically charge the computer while docked.

Ports



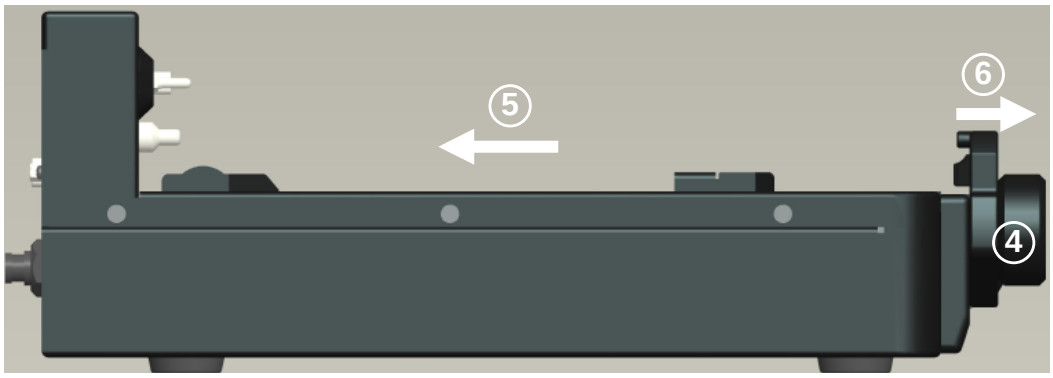
1. Serial Port DB9 (COM2/ Default: RS232)
2. Serial Port DB9 (COM1/ Default: RS232)
3. PS/2 (KB with Mouse)
4. USB #1 & #2
5. RGB Port
6. DVI Port
7. LAN Port (10M/100M)
8. Antenna Hole (Reserved for Wireless Signals)
9. DC Power Jack



1. PCI Card Slot
2. PCI Express Card Slot

Mounting the DockUnder:

1. Turn OFF the power.
2. Open the rubber cap of the docking connector.
3. Align the docking connector.
4. Loosen the bolts.
5. Push the computer horizontally to join the guiding pins.
6. Pull the metal bar outwards.

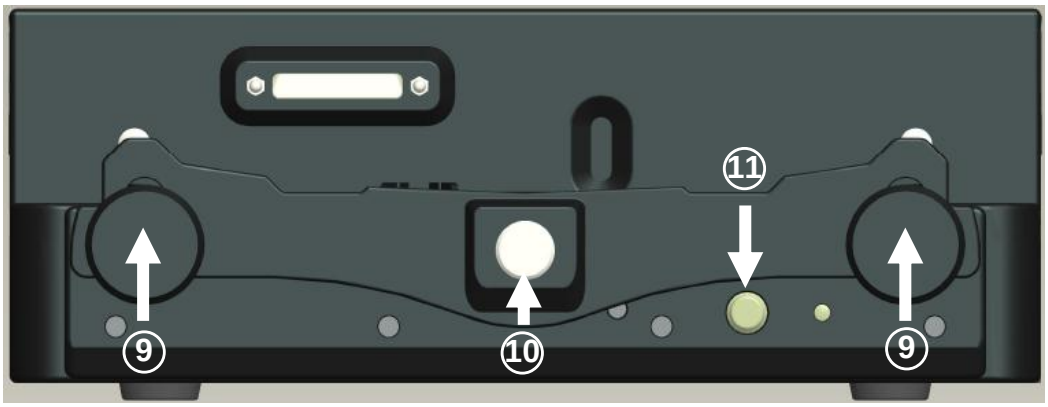


Note:

➢ *Do not lift up the computer while engaging.*

7. Pull up the metal bar.
8. Move forward inside.

9. Lock the bolts.
10. Key Locked with Electric Power ON／OFF.
11. Power On/Off with Computer.
    The Power On/Off can be replaced for Computer itself.



While turn on the power of DockUnder with the Key that can use all the functions on DockUnder. Meantime Computer will also have the power.
There is 1 PCI slot and 1 PCIe slot on the DockUnder DUT89. Maximum card dimensions are 260mm (L: length, including L-bracket thickness) x 115mm (W: width, including gold fingers) x 25 mm (H: height). The total power rating of the PCI slots is +5V/3A, +3.3V/3A, +12V/300mA, and -12V/300mA.

Chapter Three - Managing Power

AC Adapter

The AC adapter performs two functions:

- It powers the computer from an external AC source.
- It charges the computer battery.

The adapter automatically detects the AC line voltage (100V or 240V) and adjusts accordingly.

The following are recommended when using the AC adapter:

- Use a properly grounded AC outlet.
- Use one AC outlet exclusively for the computer. Having other appliances on the same line may cause interference.
- Use a power strip with built-in surge protection.

Connecting the AC adapter:

- Plug the AC cord to the adapter.
- Plug the other end of the AC cord into the wall outlet. Make sure the green LED on the adapter turns on.
- Attach the DC plug into the power jack of the computer; turn the lock ring clockwise to secure it.

AC Adapter Indicator:

The green LED indicates that AC power is ready.

Note:

➢ *To ensure system stability, please connect your computer to an external power source when operating at -20 ° C ambient temperature.*

Battery

The power source will automatically switch to battery when the external power source (AC adapter or optional vehicle adapter) is disconnected.

Battery Low

When the battery is nearly exhausted, the computer gives the following "Battery Low" warnings:

- Windows battery low warning (when operating system is Windows)
- The power LED flashes.

Once the Battery Low warning occurs, please:

- Save and close the files you are currently working on.
- Plug in the AC adapter to recharge the battery.

Charging the Battery

Plug in the AC adapter (or optional vehicle adapter) to start the battery charging. If the battery is already full, the sense circuitry will stop high current charge within several minutes.

There are two LED indicators next to the power indicator for the Primary and Secondary battery respectively. Indicator turns ON when the battery is charging and turns OFF when the battery charging is completed.

To charge the Secondary battery, simply install it into the computer and attach the AC adapter. The internal charger will charge the Primary battery first. The Secondary battery will be charged once the Primary battery charges full. Optional Dual Battery Charger can charge the Primary and Secondary batteries externally.

Battery Charging Notice

The followings are the detailed information for charging the Primary and Secondary batteries under AC and DC modes:

AC mode:

- When the Power Status is changed and AC mode is detected, the Primary battery will be charged.
- Until the Primary Battery is finished charging, then it will continue to charge the Secondary Battery fully also.
- When batteries are all full, the EC (embedded controller) will be turned off.
- If there is no Power Status change, until the capacity is down below 90%, a natural discharging occurs, and then recharge again.

DC mode:

- When DC mode is detected, it will discharge the Secondary Battery until the capacity is below 10%, and then switch to the Primary Battery for continuing discharging.
- When the capacity of the Primary Battery is below 10%, the Low Battery LED will flash.

Caution:

For the system safety issue, battery charger circuit design will stop charging battery automatically while battery internal temperature is detected over 60 degree.

Battery Gauge

You may check battery status from battery gauge in Windows. Click the power/battery icon to reveal the battery gauge window.

Battery Power Saving Tips

The computer comes with an intelligent power-saving feature. You may extend the battery life by:

- Setup power saving functions in Operating System Power Management options (e.g. Windows Power Options).
- Lower the intensity of the display by brightness control.
- Use standby option when computer is temporarily not in use.
- Shut down the computer when it will not be for a long-time use.

Replacing Battery

When the battery is nearly exhausted, there are two ways to keep your handheld computer working. Connect the AC adapter and the power cord designed for this handheld computer to start charging is one method; directly replace a charged battery designed for this handheld computer may be the other one.

Note:

- *Always remember to turn OFF the power before replacing the battery.*

Power Conservation

This computer consumes much less power than conventional computers. However, power consumption may be reduced by configuring the Power Management Setup properly.

It is recommended the power saving functions to be enabled even when not running on battery power. Power Management will not degrade performance while saving power.

Supporting ACPI

Your notebook computer supports ACPI (Advanced Configuration and Power Interface) for power management. With ACPI and an ACPI-compliant operating system such as Windows, the feature will allow you to reduce the power consumption for energy saving. By supporting ACPI, the AC adapter LED and the Power indicator LED will show in different ways. The followings are the detailed description.

Sleep:
AC adapter LED is ON (while connecting with power)
Power LED indicator is ON; Other LED indicators are OFF

Under Hibernation:
AC adapter LED is ON (while connecting with power)
Power LED indicator is OFF; Other LED indicators are OFF

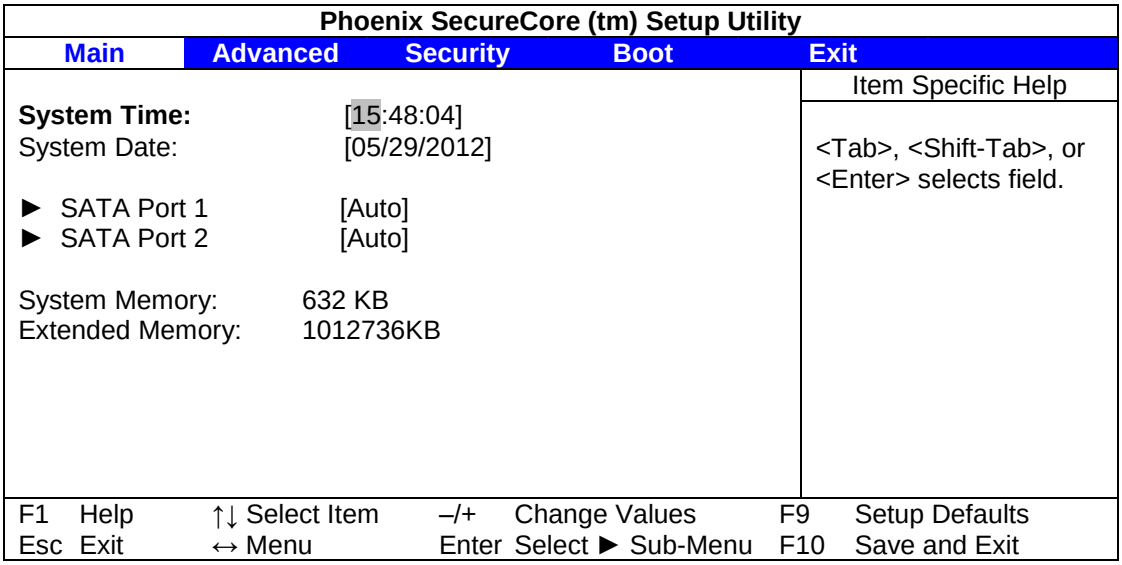
Shutdown:
AC adapter LED is ON (while connecting with power)
Power LED indicator is OFF; Other LED indicators are OFF

Chapter Four - BIOS Setup

Press **[F2]** at boot up to enter BIOS setup. Use arrow keys to select options and **[+/-]** to modify them. When finished, move to" **Exit**" and press **[Enter]** then confirm save by pressing **[Y]**.

Please enter **Default Supervisor Password [0000]**, while entering into BIOS Setup Menu.

Main Menu


Phoenix SecureCore (tm) Setup Utility
Main
Advanced
Security
Boot
Exit
Item Specific Help
System Time: [15:48:04]
System Date: [05/29/2012]
► SATA Port 1 [Auto]
► SATA Port 2 [Auto]
System Memory: 632 KB
Extended Memory: 1012736KB
<Tab>, <Shift-Tab>, or <Enter> selects field.
F1 Help ↑↓ Select Item –/+ Change Values F9 Setup Defaults
Esc Exit ↔ Menu Enter Select ► Sub-Menu F10 Save and Exit

Note: *The BIOS screen and menu contents may vary depending on computer configurations.*

Main Menu Selections

You can make the following selections on the Main Menu. Use the sub-menus for other selections.

Feature	Options	Description
System Time	HH:MM:SS	Set the system time Hour, Minute, Second.
System Date	MM/DD/YYYY	Set the system date Month, Day, Year.
SATA Port 1~2	None	Auto-detect the device, then show the device.

General Help Window

Pressing **<F1>** or **<Alt-H>** at any menu brings up the General Help window that describes the detailed keys and functions for setup.
The scroll bar on the right of any window indicates that there is more than one page of information in the window. Use **<PgUp>** and **<PgDn>** to display all the pages. Pressing **<Home>** and **<End>** displays the first and last page. Pressing **<Enter>** displays each page and then exits the window. Press **<Esc>** to exit the current window.

SATA Port 1 Sub-Menu

Phoenix SecureCore (tm) Setup Utility		
Main		
SATA Port 1	[Auto]	Item Specific Help
Type:	[Auto]	User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.
	LBA Format	
Total Sectors:	976773168	
Maximum Capacity:	500GB SATA 1	
Multi-Sector Transfers:	[16 Sectors]	
LBA Mode Control:	[Enabled]	
32 Bit I/O:	[Disabled]	
Transfer Mode:	[FPIO 4 / DMA 2]	
Ultra DMA Mode:	[Mode 5]	

F1 Help	↑↓ Select Item	–/+	Change Values	F9	Setup Defaults
Esc Exit	↔ Menu	Enter	Select ▶ Sub-Menu	F10	Save and Exit

SATA Port 1 Sub-Menu Selections

You can make the following selections on the SATA Port 1 Sub-Menu.

Feature	Options	Description
32 Bit I/O:	Enabled Disabled	This setting enables or disables 32 bit IDE data transfers.

SATA Port 2 Sub-Menu

Phoenix SecureCore (tm) Setup Utility		
Main		
SATA Port 2	[Auto]	Item Specific Help
Type:	[Auto]	User = you enter parameters of hard-disk drive installed at this connection. Auto = autotypes hard-disk drive installed here. CD-ROM = a CD-ROM drive is installed here. ATAPI Removable = removable disk drive is installed here.
	LBA Format	
Total Sectors:	976773168	
Maximum Capacity:	40008MB SATA 2	
Multi-Sector Transfers:	[16 Sectors]	
LBA Mode Control:	[Enabled]	
32 Bit I/O:	[Disabled]	
Transfer Mode:	[FPIO 4 / DMA 2]	
Ultra DMA Mode:	[Mode 5]	
SMART Monitoring:	Disabled	

F1	Help	↑↓ Select Item	–/+	Change Values	F9 Setup Defaults
Esc	Exit	↔ Menu	Enter	Select ▶ Sub-Menu	F10 Save and Exit

SATA Port 2 Sub-Menu Selections

You can make the following selections on the SATA Port 2 Sub-Menu.

Feature	Options	Description
32 Bit I/O	Enabled Disabled	This setting enables or disables 32 bit IDE data transfers.

Advanced Menu

Phoenix SecureCore (tm) Setup Utility					
Main	Advanced	Security	Boot	Exit	
					Item Specific Help
	Boot-time Diagnostic Screen:	[Enabled]			Display the diagnostic screen during boot
	QuickBoot Mode:	[Enabled]			
	USB 2.0 Control:	[Enabled]			
	Passive Cooling Trip Point:	[87 C]			
	Core Multi-Processing:	[Enabled]			
	Intel(R) SpeedStep (tm)	[Enabled]			
	CX States	[Enabled]			
	DVMT Pre-Allocated:	[32 MB]			
	Total Graphics Memory:	[MaxDVMT]			
	PCI Hot-Plug Resources:	[Enabled]			
	SATA Mode Selection:	[AHCI]			
►	SIO SMC227 CONFIGURATION				
F1 Help	↑↓ Select Item	–/+	Change Values	F9	Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10	Save and Exit

Warning:

Incorrect settings may cause system malfunction. To correct it, restore the Setup Default with <F9>.

Advanced Menu Selections

You can make the following selections on the Advanced Menu.

Feature	Options	Description
Boot-time Diagnostic Screen	Enable Disabled	Display the diagnostic screen during boot
QuickBoot Mode	Enable Disabled	Allows the system to skip certain tests while booting. This will decrease the time needed to boot the system.
USB 2.0 Control	Enable Disabled	Enables Device 29 USB 2.0 functionality.
Passive Cooling Trip Point	15 C 71 C 23 C 79 C 31 C 87 C 39 C 95 C 47 C 103 C 55 C 109 C 63 C 111 C Disabled	This value controls the temperature of the ACPI Passive Trip Point – the point in which the OS will begin throttling the CPU. Note: When the DTS is enabled, only values below 97C are valid.
Core Multi-Processing	Enable Disabled	Determines whether the 2nd core is enabled. Disabled = 2nd core is disabled. Enabled = 2nd core is enabled.
Intel(R) SpeedStep (tm)	Enable Disabled	Allows more than two freq. range to be supported
CX States	Enabled Disabled	Enable CPU C-states: Main switch for C0, C1, C2, C3, C4, Deep C4, C6
DVMT Pre-Allocated	32 MB 64 MB 128 MB	Select DVMT Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
Total Graphics Memory	128 MB 256 MB MaxDVMT	Select the amount of Total Graphics Memory- Pre-Allocated + Fixed + DVMT for use by the Internal Graphics Device.
PCI Hot-Plug Resources	Enabled Disabled	Enable/ Disable Hot-Plug support.
SATA Mode Selection	Compatible AHCI	Determines how SATA controller(s) operate.
SIO SMC227 CONFGURATION		These items control the configuration of various National 393 SIO devices.

BIOS Settings For Windows XP Installation

If you wish to install Windows XP on your notebook computer, please take note of the following procedures.

1. Please enter BIOS Settings by pressing F2 during boot-up.
2. Proceed to Advanced Menu tab.
3. Under Advanced Menu, change the SATA Mode Selection setting to "Compatibility" mode.
4. Save your changes and exit BIOS Settings.
5. Restart your notebook computer and install Windows XP.

SIO SMC27 CONFIGURATION Sub-Menu

Phoenix SecureCore (tm) Setup Utility					
Advanced					
SIO SMC227 CONFIGURATION				Item Specific Help	
COM1 port:	[3F8-IRQ 4]			Configure COM1 using device options:	
COM1 mode:	[RS232]				
COM2 port:	[2F8-IRQ 3]			[Disabled]	
COM2 mode:	[RS232]			No configuration	
COM3 port:	[3E8-IRQ 10]				
COM3 mode:	[RS232]				
COM4 port:	[2E8-IRQ 5]			[3F8-IRQ 4]	
COM4 mode:	[RS232]			Set the base I/O address for COM1	
Printer1:	[378-IRQ 3]				
Printer1 mode:	[Standard]				
F1 Help	↑↓ Select Item	–/+	Change Values	F9	Setup Defaults
Esc Exit	↔ Menu	Enter	Select ► Sub-Menu	F10	Save and Exit

Warning:

Make sure internal COMx mode settings must be with the same type of the external connected devices. Otherwise it may cause serial components damage in either side.

SIO SMC27 CONFIGURATION Sub-Menu Selections

You can make the following selections on the SIO SMC27 CONFIGURATION Sub-Menu.

Feature	Options	Description
COM1 port	3F8-IRQ 4 Disabled	Configure COM1 using device options: [Disabled] No configuration [3F8-IRQ 4] Set the base I/O address for COM1
COM1 mode	RS232 RS422 RS485 TTL1	Configure UART mode options: [RS232]: External Device [TTL1]: Internal Device [RS422]: External Device [RS485]: External Device
COM2 port	2F8-IRQ 3 Disabled	Configure COM2 using device options: [Disabled] No configuration [2F8-IRQ 3] Set the base I/O address for COM2
COM2 mode	RS232 RS422 RS485 TTL2	Configure UART mode options: [RS232]: External Device [TTL2]: Internal Device [RS422]: External Device [RS485]: External Device
COM3 port	3E8-IRQ 10 Disabled	Configure COM3 using device options: [Disabled] No configuration [3E8-IRQ 10] Set the base I/O address for COM3
COM3 mode	RS232 RS422 RS485 TTL3	Configure UART mode options: [RS232]: External Device [TTL2]: Internal Device [RS422]: External Device [RS485]: External Device
COM4 port	2E8-IRQ 5 Disabled	Configure COM4 using device options: [Disabled] No configuration [2E8-IRQ 5] Set the base I/O address for COM4
COM4 mode	RS232 RS422 RS485 TTL4	Configure UART mode options: [RS232]: External Device [TTL2]: Internal Device [RS422]: External Device [RS485]: External Device
Printer1	378-IRQ 7 Disabled	Configure Printer1 device options: [Disabled] No configuration [378-IRQ 7] Set the base I/O address for Printer1
Printer1 mode	Standard ECP EPP	Configure Printer1 mode options: Standard EPP ECP

Security Menu

Warning:

If you forget user/supervisor password, the computer has to send back to manufacturer and replace EEPROM to make it work again. If you forget your HDD password, the HDD cannot be recovered and needs to be replaced.

Phoenix SecureCore (tm) Setup Utility				
Main	Advanced	Security	Boot	Exit

		Item Specific Help
Supervisor Password Is:	Clear	Supervisor Password controls access to the setup utility.
User Password Is:	Clear	
Set Supervisor Password	[Enter]	
Set User Password	[Enter]	
Set HDD 0 Password	[Enter]	
HDD 0 Password Status	Clear	
Set HDD 1 Password	[Enter]	
HDD 1 Password Status	Clear	
Fixed disk boot sector:	[Normal]	
Password on boot:	[Disabled]	
AC97 Audio Interface	[Auto]	
Cardbus/1394 Inferface	[Auto]	
TPM Support	[Disabled]	
►RF Interface Control		

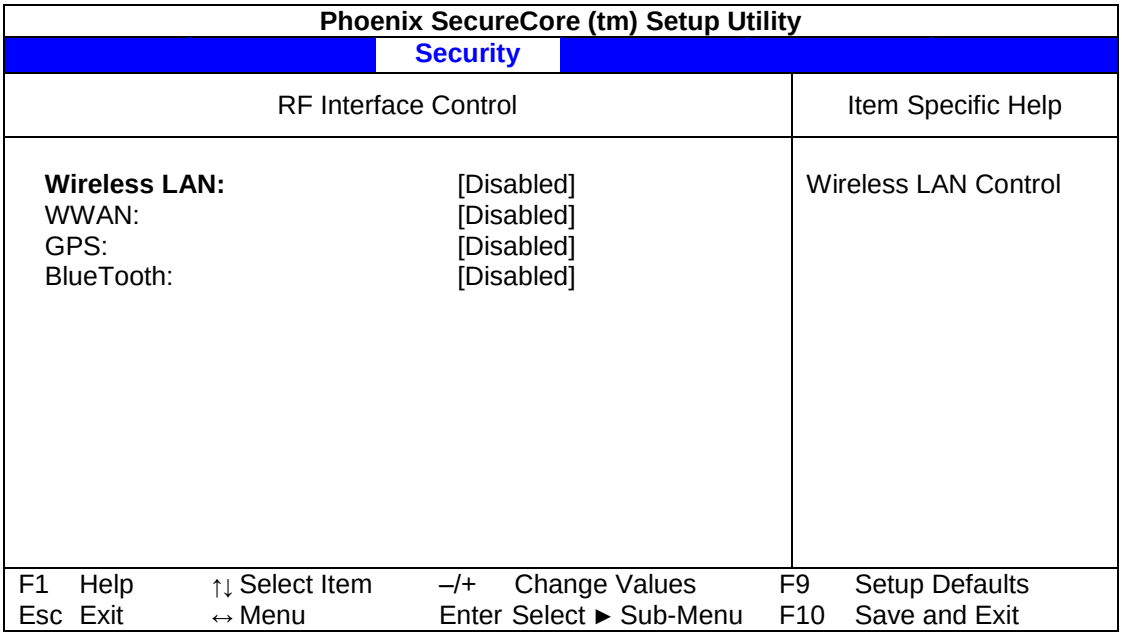
F1	Help	↑↓ Select Item	–/+	Change Values	F9	Setup Defaults
Esc	Exit	↔ Menu	Enter	Select ► Sub-Menu	F10	Save and Exit

Security Menu Selections

You can make the following selections on the Security Menu.

Feature	Options	Description
Set Supervisor Password	Enter	Supervisor Password controls access to the setup utility.
Set HDD 0 Password	Enter	Enter HDD 0 Password
Set HDD 1 Password	Enter	Enter HDD 1 Password
Fixed disk boot sector	Normal Write Protect	Write protects the boot sector on the hard disk to protect against viruses.
Password on boot	Enabled Disabled	Enables password entry on boot
AC97 Audio Interface	Auto Disabled	Control Detection of the AC97 Device.
Cardbus/1394 Interface	Auto Disabled	Cardbus Device Function Disable/Enable
TPM Support	Enabled Disabled	Enable Trusted Platform Module support
RF Interface Control		RF Security Control: Wireless LAN WWAN GPS BlueTooth

RF Interface Control Sub-Menu


Phoenix SecureCore (tm) Setup Utility
Security
RF Interface Control
Item Specific Help
Wireless LAN: [Disabled]
WWAN: [Disabled]
GPS: [Disabled]
BlueTooth: [Disabled]
Wireless LAN Control
F1 Help ↑↓ Select Item –/+ Change Values F9 Setup Defaults
Esc Exit ↔ Menu Enter Select ► Sub-Menu F10 Save and Exit

RF Interface Control Sub-Menu Selections

You can make the following selections on the RF Interface Control Sub-Menu.

Feature	Options	Description
Wireless LAN	Enabled Disabled	Wireless LAN Control
WWAN	Enabled Disabled	WWAN Control
GPS	Enabled Disabled	GPS Control
BlueTooth	Enabled Disabled	BlueTooth Control

Boot Menu

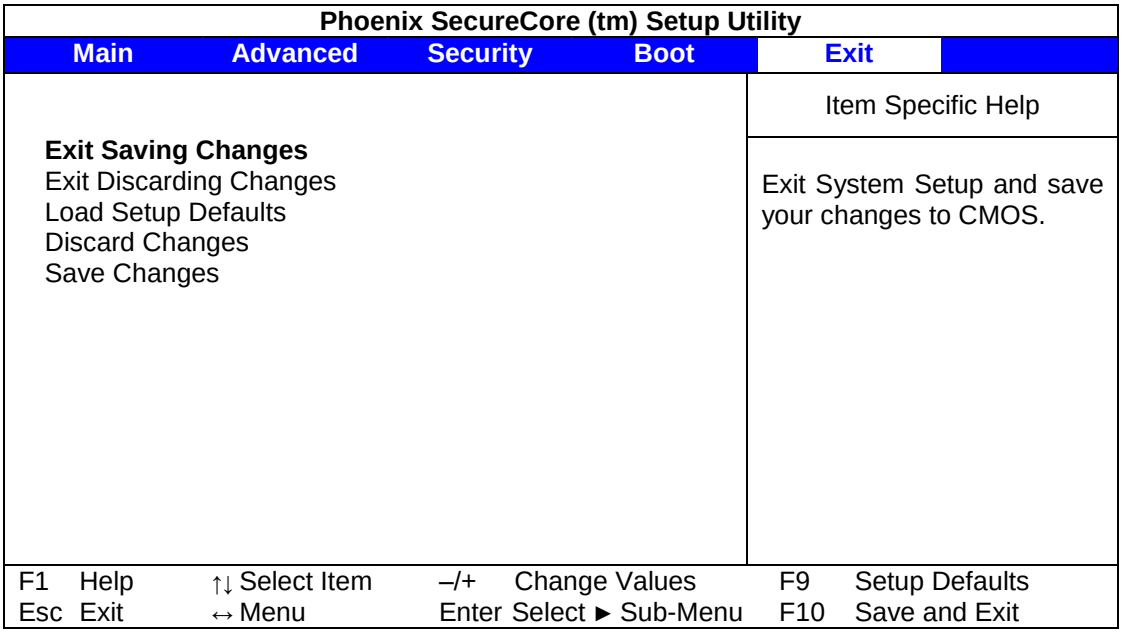
Phoenix SecureCore (tm) Setup Utility				
Main	Advanced	Security	Boot	Exit

Boot priority order: **1: USB HDD:** 2: USB CDROM: 3: USB KEY: 4: IDE HDD: (Auto) 5: CD: 6: PCI BEV: 7: 8: Excluded from boot order: : USB FDC: : USB ZIP: : USB LS120: : PCI SCSI: : Other USB: : PCI: : Legacy Network Card	Item Specific Help Keys used to view or configure devices: Up and Down arrows select a device. <+> and <–> moves the device up or down. <f> and <r> specifies the device fixed or removable. <x> exclude or include the device to boot. <Shift + 1> enables or disables a device. <1 – 4> Loads default boot sequence.

F1	Help	↑↓	Select Item	–/+	Change Values	F9	Setup Defaults
Esc	Exit	↔	Menu	Enter	Select ► Sub-Menu	F10	Save and Exit

The system will try to boot from device on top then the 2nd and so on. If there is more than one device in each category, only the device on top of sub-menu can boot up.

Exit Menu



Exit Menu Selections

You can make the following selections on the Exit Menu.

Feature	Options	Description
Exit Saving Changes		Exit System Setup and save your changes to CMOS.
Exit Discarding Changes		Exit utility without saving Setup data to CMOS.
Load Setup Defaults		Load default values for all SETUP items.
Discard Changes		Load previous values from CMOS for all SETUP items.
Save Changes		Save Setup Data to CMOS

Chapter Five - Drivers and Applications

Chipset Driver

Windows 7/Ultimate 64-bit:
Run "Setup.exe" in the directory of:
"RF9-RK9-RT9\Drivers\Win7(64bit)\Chipset\infinst_autol", and then follow the instructions to install.

Windows XP/SP3:
Run "infinst_autol.exe" in the directory of:
"RF9-RK9-RT9\Drivers\WinXP(32bit)\Chipset", and then follow the instructions to install.

VGA

Windows 7/Ultimate 64-bit:
Run "Setup.exe" in the directory of:
"RF9-RK9-RT9\Drivers\Win7(64bit)\VGA\Win7Vista_64_151716", and then follow the instructions to install.

Windows XP/SP3:
Run "winxp_14428.exe" in the directory of:
"RF9-RK9-RT9\Drivers\WinXP(32bit)\VGA", and then follow the instructions to install.

Audio

Windows 7/Ultimate 64-bit:
Run "Setup.exe" in the directory of:
"RF9-RK9-RT9\Drivers\Win7(64bit)\Audio\Vista_Win7_R260", and then follow the instructions to install.

Windows XP/SP3:
Run "WDM_R253.exe" in the directory of "RF9-RK9-RT9\ Drivers\ WinXP(32bit)\ Audio", and then follow the instructions to install.

Touch Screen (Optional)

Windows 7/Ultimate 64-bit:

a. If the touch screen controller is in the optional COM4, it may be configured as touch screen and doesn't need BIOS setup.
b. BIOS setting: Set "TTL1" for COM1 mode in Phoenix BIOS Setup Advanced\SIO SMC227 CONFIGURATION.
c. Then cancel the prompt of installation wizard to run "setup.exe" in the directory of "RF9-RK9-RT9 \ Drivers\ Win7 (64bit)\ DP9000_DP6300\ PenMount Windows Universal Driver V2.2.0.283 (Win7_32_64bit_WHQL)", and then follow the instructions to install.

Windows XP/SP3:

a. If the touch screen controller is in the optional COM4, it may be configured as touch screen and doesn't need BIOS setup.
b. BIOS setting: Set "TTL1" for COM1 mode in Phoenix BIOS Setup Advanced\SIO SMC227 CONFIGURATION.
c. Then cancel the prompt of installation wizard to run "setup.exe" in the directory of "RF9-RK9-RT9 \ Drivers \ WinXP (32bit) \ Touchscreen \ PenMount Universal Driver v2.2.0.283" then follow the instructions to install.

Gigabit LAN (Optional)

Windows 7/Ultimate 64-bit:

Run "setup.exe" in the directory of:
"RF9-RK9-RT9\Drivers\Win7(64bit)\PCIe_1G LAN\Install_Win7_7046_07202011", and then follow the instructions to install.

Windows XP/SP3:

Run "setup.exe" in the directory of:
"RF9-RK9-RT9\Drivers\WinXP(32bit)\PCIe_1G LAN\PCIE_Install_5788_07202011", and then follow the instructions to install.

Modem (Optional)

Windows 7/Ultimate 64-bit:

The Windows 7/ Ultimate 64-bit will automatically install the driver.

Windows XP/SP3:

Run "setup.exe" in the directory of "RF9-RK9-RT9\ Drivers\WinXP(32bit)\ MDC\MA560-6\XP_2K\hda-v2172-w2kxp-logod", and then follow the instructions to install.

Wireless Manager

Windows 7/Ultimate 64-bit:
Run "setup.exe" in the directory of "Utilities\Windows 7(64-bit)\9 Series Wireless Manager 20110222", and then follow the instructions to install.

Windows XP/SP3:
Run "setup.exe" in the directory of "Utilities\Windows XP (32-bit)\9 Series Wireless Manager 20110222", and then follow the instructions to install.

WLAN (Optional)

Windows 7/Ultimate 64-bit:
Run "iprodifx.exe" in the directory of:
"RF9-RK9-RT9\Drivers\Win7(64bit)\WLAN_5100\Intel", and then follow the instructions to install.

Windows XP/SP3:
Run "ICS_Dx32.exe" in the directory of:
"RF9-RK9-RT9\Drivers\WinXP(32bit)\WLAN_5100\V13.4.0.0", and then follow the instructions to install.

Bluetooth (Optional)

Windows 7/Ultimate 64-bit:
First, enter into the "Wireless Manager" to turn on the Bluetooth device.
Run "setup.exe" in the directory of:
"RF9-RK9-RT9\Drivers\Win7(64bit)\BLU_BC4_V7.x\BlueSoleil 7.0.348.1\install", and then follow the instructions to install.

Windows XP/SP3:
First, enter into the "Wireless Manager" to turn on the Bluetooth device.
Run "setup.exe" in the directory of:
"RF9-RK9-RT9\Drivers\WinXP(32bit)\BLU_BC4_V7.x\BlueSoleil 7.0.348.1\install", and then follow the instructions to install.

GPS (Optional)

Windows 7/ Ultimate 64-bit:
First, enter into the "Wireless Manager" to turn on the GPS device.
Run "ublox_A4_U5_USB_drv3264win7.exe" in the directory of "RF9-RK9-RT9\Drivers\Win7(64bit)\GPS LEA-5H\v2.0.0.1", and then follow the instructions to install.

Windows XP/SP3:
First, enter into the "Wireless Manager" to turn on the GPS device.
Run "ublox_A4_U5_USB_drv3264_install_UI.exe" in the directory of "RF9-RK9-RT9\Drivers\WinXP(32bit)\GPS LEA-5H\WIN XP Version 1.2.0.5", and then follow the instructions to install.

WWAN (Optional)

Windows 7/ Ultimate 64-bit:
First, enter into the "Wireless Manager" to turn on the WWAN device three times.

Then enter into the "Device Manager" to update driver of "HC25 MODEM, HC25 NET, HC25 VCOM" three parts, then select "Browse my computer.....", then select "Browse for driver..... and search for "RF9-RF9-RK9-RT9\Drivers\Win7(64bit)\ hc25_2_64bit_drivers" then follow the prompt to complete installation.

**: Then copy the "Conman" in the directory of "RF9-RK9-RT9\ Drivers \ Win7 (64bit)\ hc25_2_64bit_drivers" for connect to internet.

Windows XP/SP3:
Run "Autorun.exe" in the directory of:
"RF9-RK9-RT9\Drivers\WinXP(32bit)\HSDPA_HC25\hc25_rev02050_conman_install", and then follow the instructions to install.

Chapter Six - Specifications

CPU

- Intel® Core™ Duo Processor **(Penryn)** P8400 2.26 GHz

CPU runs at multiple speeds depending on the CPU type and operating system. Also, CPU speed switches automatically by detecting AC adapter/ battery operation and busy state.

Memory

- System memory: Standard: 1GB
- Expandable: 8GB
- Cache memory: Internal Level 3 MB
- Graphic memory: Shared system memory from 32MB to 1695 MB

Chipset

- North Bridge: Mobile **Intel® GM45** Express chipset **Cantiga** (G) MCH
- South Bridge: Intel® **ICH9M-Enhanced**

Display

- Type: 13.3” CCFL
- Resolution: 1024 x 768 pixels
- Mode: XGA
- Color: 18 bit, 256K colors
- Brightness: 380~480nits

Keyboard

- Number of keys: 87 Keys (standard 87-key w/o backlight)
  89 keys (optional rubber 89-key with backlight)
- Key Travel: 2.8 mm (standard 87-key w/o backlight)
  1.5 mm (optional rubber 89-key with backlight)

Touchpad

- Type: Resistive type
- Compatible: USB
- Lifetime: Over 5,000,000 strokes lifetime

Hard Disk Drive (HDD)

- Type: 2.5” (Removable)
- Height: 9.5mm
- Interface: SATA

Optical Disk Drive (ODD)

- Type: 5.25” (Removable)
- Height: 12.7mm
- Interface: SATA

I/O Ports

- PS/2 x1 (KB + mouse)
- USB 2.0 x 3
- IEEE1394 Fire Wire x 1
- LAN RJ45 x 1
  Optional: Modem RJ11 Port x 1
- PC Card type I/II x 1;Express card (PCI-e) x 1
  Optional: PC Card Type I/II x 2
- Audio Jack x 3 (Mic/Line in/Earphone)
- DB9 x 2 (COM1/2)
- Optional: DB9 x 2 (COM3/4)
- Printer DB25 x 1
- Docking Conn. x 1 (Optional: Military type)
- RGB DB15 x 1
  Optional: Military Connector Port

AC Adapter

- AC Input: 100 - 240 V
- Frequency: 50/60 Hz
- DC Output: 19V
- Maximum Power: 90 Watts Max. Output
- Dimension: 130mm (W) x 60mm (D) x 34mm (H)
- Weight: 430 g (0.9 lb.)

Battery

Primary Battery:

- Type: 9 x 18650 cells Lithium Ion
- Capacity: 10.8V 8700mAH
- Dimension: 103 mm (W) x 73 mm (D) x 38 mm (H)
- Weight: 435 g

2nd Battery (Optional):

- Type: 9 x 18650 cells Lithium Ion
- Capacity: 10.8V 8700mAH
- Dimension: 137 mm (W) x 170 mm (D) x 22 mm (H)
- Weight: 560 g

System Unit Dimensions and Weight

- Width: 312 mm
- Depth: 246 mm
- Height: 66.7 mm
- Weight: 4.3Kg

Note:

➢ *Weight varies depending on system configurations.*

Materials and Recycling

Materials of the computer are as follows:

- Cabinet: Aluminum Alloy ADC-12,
  Magnesium Alloy AZ91D,
  UL grade PC+ABS GE C6200 or TN-3813BW
- Bracket: Aluminum 5052, Steel with Nickel Plating, or
  Stainless Steel S304
- Cushion pad: Silicon Rubber, TPE
- PCB: FR-4, UL 94V0
- Battery: Rechargeable Lithium Ion, 9 Cells per Pack
- Packing: Carton - Unbleached Paper
  Cushion - Recyclable EPE
  Carrying bag - Recyclable PE Fiber
  User Guide - Recycled/Recyclable Paper

Please recycle the parts according to the local regulations.

Environmental

- Temperature: -20 ~ +50ºC (-4 ~ +122ºF) operating
  -40 ~ +70ºC (-40 ~ +158ºF) storage
- Humidity: 5~95% Non-condensing operating
  95% maximum storage
- Altitude: 0 ~ 4,572 meters (0 ~ 15,000 feet)

Chapter Seven - Optional Devices

Memory Card

The memory card will expand your memory to facilitate better system performance. 1GB, 2GB, and 4GB SO-DIMM DDR3 memory cards are acceptable:

Vehicle Adapter

- Input Voltage: 12~32V
- Input Current: 9A max
- Output Voltage: 19V
- Output Current: 4A
- Wiring: Cigarette lighter/ Truck battery
- Application: Car or Truck installation

2nd Battery

Trade-off with ODD, a Lithium Ion rechargeable 2nd battery may install into the ODD-compartment. It shares the same capacity of primary battery and smart battery compliance.

The computer's internal charger can detect 2nd battery and perform charging accordingly.

2nd HDD

- Trade-off with ODD, set as SATA primary slave drive.

ODD

- Removable ODD for disks playing
- Compatible with VCD-ROM, DVD-ROM, and etc.

LAN and Modem Card

- 10Mb/100Mb/1Gb LAN Card
- 56Kbps V.92 Modem Card

Wireless LAN Card

- IEEE 802.11 a/b/g/n wireless LAN card

Bluetooth

- Bluetooth® v2.1 + EDR system (Class 2)
- Backward compatible with v1.1/1.2/2.0 devices.

WWAN

- HSDPA/UMTS 3.5G

GPS

- Ublox LEA-5H

KB Dust Cover

- KB Dust Cover is available for standard Keyboard.

PC Card Cover

Besides the attached PC Card rubber cover, there is an optional cover with a metal frame that can be fixed by using screws. The cover provides protection from dust or water for cabled PC Cards. Users may seal the cable outlet after installation.

Built-in Vehicle Adapter

Converting power from car lighters or truck batteries to DC +19V, they are the same output ratings as AC adapters. It can power the system and charge the batteries simultaneously.

Caution:

Remove or disconnect the adapter when leaving the vehicle to avoid battery exhaustion.

Surge Protector SP-200

SP-200 Surges Protector is designed for all equipment to directly connect with the vehicle power system. Containing the reverse polarity protection and the clamping of high voltage input, SP-200 Surges Protector is able to be against high 100V at 50ms surges and spikes ± 250V at 100us.

Dual Battery Charger RT202D

This charger provides two bays for the **Primary** and **Secondary Batteries** respectively. It accepts power from AC adapter or vehicle adapter and charged batteries. It takes approximately 6 hours to fully charge both batteries.

COM 3/4 Card and Additional Serial Ports

- Supporting RS232, TTL, RS422, and RS485 formats.

Military Connector/ Military Serial Connector

- Military connectors x 2 are available.
- 37 pin MIL-DTL-38999 military serial connector, carrying max. 4 COM port signals is available.

DockUnder DUT89

It does not support hot plug. Please mount your notebook computer with the DockUnder when the power is OFF.

PCI Slot x 2, PCIe Slot x 2, Serial Port x 2, USB 2.0 x 2, PS/2 x 1, RGB x 1, DVI x 1, M-LAN). The antenna hole is reserved for wireless signals.

Trust Platform Module (TPM)

There is an optional Trust Platform Module (TPM) equipped with this notebook computer for users to strengthen the security.

With TPM, users are able to encrypt the folders and files directly and make the important file be more secure and be with an additional protection. In other words, your TPM-encrypted files are basically protected with two layers. Even if your TPM-encrypted files are hacked, the files can not to be read without passwords and TPM chipset.

Chapter Eight - Maintenance and Service

Cleaning

ALWAYS turn OFF the power, unplug the power cord and remove the battery before cleaning.

The exterior of the system and display may be wiped with a clean, soft, and lint-free cloth. If there is difficulty removing dirt, apply non-ammonia, non-alcohol based glass cleaner to the cloth and wipe.

An air gun is recommended for cleaning water and dust. For salty water please clean with fresh water then blow-dry with an air gun. Be sure not to turn the computer upside-down while there is water being applied.

Troubleshooting

Should the computer fail to function properly, the troubleshooting steps below may be followed.

- Check AC/vehicle adapter, battery, and the power source.
- Minimize the configuration, i.e. remove extra peripherals and devices.
- Remove the modules one by one (HDD, CD-ROM, Battery, etc.).
- Remove the software suspected.
- Set BIOS fail-safe default.
- Re-install operating system and application software.

RMA Service

If troubleshooting steps are unsuccessful, consult your dealer for RMA.
Shipping instructions:

1. Remove any personal disks or other media.

2. Use the original shipping container and packing materials, if possible.

3. If the original packing materials are not available, wrap the equipment with soft material (e.g. PU/PE form) then put the wrapped equipment into a hard cardboard shipping box.

4. Include a sheet with the following information: (Note: Please keep a copy of this sheet for your records)

   - Name
   - Address
   - Unit serial number
   - Place and date of purchase or the original invoice number
   - Date of failure
   - A DETAILED Description of the problems you have encountered
   - A list of the hardware/software configuration, if applicable.

5. Clearly mark the outside of the shipping box with the RMA #. If RMA # is not present on the shipping box, receiving will be unable to identify it and it might be returned.

6. Unless prior arrangements have been made, the customer is responsible for all shipping costs. Unauthorized use of the company's shipping accounts is not permitted.